

thing, however, is that this hyper-reaction, or allergic phenomenon, is not specific for one strain of streptococcus but may be elicited by subsequent injections of different strains from that first inoculated, irrespective of their being hæmolytic or non-hæmolytic in character.

It is possible then that rheumatic fever may represent a state of allergy or hypersensitiveness of the body to the streptococcus, which state may be maintained by a nidus of infection, in the tonsil, for example.

Further important disclosures have been brought to light by the Rockefeller Institute workers. They have found that this allergic state does not occur after intravenous injection of streptococci, but that animals so inoculated become immune. Their conception is that allergy occurs when there is a maximum reaction of a few body cells and that immunity follows a minimum reaction of many cells.

This observation is of wide biological significance and undoubtedly will be applied in the explanation and possibly in the treat-

ment of infectious diseases caused by micro-organisms other than the streptococcus, just as the allergic state has been recognized as being of extreme importance in determining the type of response of an animal body to infections with the tubercle bacillus.

The observations of Birkhaug and of Swift, Derick, Andrewes and Hitchcock are not limited to animals but are being applied to normal human beings, rheumatic fever patients and recoveries, with apparently corresponding results, and one looks forward to the appearance of further papers on this subject from these latter authors, with particular reference to their findings that they can desensitise or render less allergic both animals and man by intravenous inoculation of small, repeated doses of streptococci.

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(See also Proc. Soc. Clin. Invest., May, 1928.)

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ON YELLOW FEVER

PROFESSIONAL interest in yellow fever to a great extent subsided after Reed, Carrol, and Agramonte, in their experimental work in Cuba, proved incontestably that a special mosquito the *Stegomyia fasciata seu calopus*, or as it is now termed *Aedes Aegypti*, is the carrier of the noxious germ. With the knowledge gained from this investigation and the known means of destroying the larvae of this insect in its breeding places it was found relatively easy by stringent regulations to keep the numbers of this mosquito at an efficient low level. By means of this newly acquired knowledge the Panama canal was built, all the larger cities were freed from disease, and travellers generally experienced relief from the dread of this dangerous pest. By the use of these means yellow fever ceased to exist as a menace in the New World.

In Africa, however, less dependence was able to be placed on these measures as, owing to the primitive nature of the population, it was impossible to depend upon their

being efficiently carried out, and persistent investigations have been carried on for many years by medical officers in the Colonial Service, in the hope of discovering the causative organism from which an efficient antiserum could be made. Owing to the lack of success in these investigations a special commission was sent out to the West Coast of Africa by the Rockefeller Foundation to carry on further research, and shortly afterwards its numbers were increased by British representatives which included the late Adrian Stokes, and two other Englishmen. It was not long before Adrian Stokes made the important discovery that the disease was inoculable in Asiatic monkeys, and particularly in the species *Macacus rhesus*. It was found that in this species the virus was easily maintained by direct inoculation of blood and tissues or by mosquito transmission. By this means a greatly extended field was opened up for experimental investigation, and it became possible to show that the disease was not

caused by a leptospira, as Noguchi had at first thought, but by a filterable virus. Up till quite recently both Noguchi and W. A. Young, of the Colonial Service, in whose laboratory Noguchi was working, felt confident that they were on the eve of discovering the special virus when the sad word reached us that both of them had fallen victims to the infection. Before their death A. W. Sellards, of Harvard University, at another post in West Africa, had confirmed the susceptibility of the Asiatic monkey to inoculation and on returning to London took with him frozen virus which fortunately remained active, and enabled experimental work to be carried on in London. With this strain Edward Hindle, the Beit Fellow in Tropical Medicine, carried out investigations at the Wellcome Bureau of Scientific Research, in London. Making use of the same method which had proved successful for the production of vaccines in the hands of Laidlaw and Duncan in the case of dog distemper, and of Todd in the case of the fowl plague, Hindle found that a phenol-glycerine emulsion of the liver conferred on monkeys an immunity against enormous doses of virulent virus. Aragao, who had been working at the Oswaldo Cruz Institute in Rio de Janeiro, after demonstrating the susceptibility of the Asiatic monkey, and by a cross immunity test had proved the identity of the American and West African viruses, on the receipt of Hindle's paper prepared a vaccine by the method suggested

by him. This vaccine proved efficient in a number of laboratory workers. Later on, between 300 and 400 people were vaccinated without accident and none of them contracted the disease. At the present the production of this vaccine has been undertaken on a larger scale, and will be available for use by the Public Health Department of Brazil. Although it may be too soon as yet to draw conclusions, the results thus far have been most encouraging. The editorial in the *British Medical Journal* (1928, 2, 947) from which we have drawn the above facts, calls attention also to the protective action of serum obtained from convalescence. It was shown by the French Commission in 1923, and by Stokes, and his associates that in monkeys a comparatively small dose of serum from a recovered case of the disease would protect against infection. The *Journal* claims that the use of such serum will confer immediate immunity and prove valuable when it is desired to immunize more rapidly than by vaccine. It is hoped, however, that Hindle's vaccine may show itself as effective in human beings as in monkeys and prove of great value in the prevention of yellow fever, which has hitherto depended on ceaseless vigil against the bites of the ubiquitous insect vector.

A.D.B.

We regret to learn that Professor Oskar Klotz of Toronto, who had more recently been sent out to this same field of research by the Rockefeller Institute has returned with greatly impaired health owing to malarial infection.

ON CHRONIC HYPERTROPHY OF THE TONSILLAR RING

“CHRONIC enlargement of the tonsillar ring is an affection of importance which may influence in an extraordinary way the mental and bodily development of children.” This is the statement with which Osler in his text-book of medicine commences his chapter on Chronic Hypertrophy of the Tonsils. Dupuytren, in 1828, just one hundred years ago, was the first writer of importance to call the attention of the profession to the deformity of the chest walls which results from chronic hypertrophy of the tonsillar ring in young children. Meyers, of Copenhagen, in 1868, emphasized particularly the importance of adenoids in the

nasopharynx of sufficient size to block the air passages. He called attention to the condition as one existing not infrequently in early infancy and giving rise not only to deformity of the chest wall, but also to deformity in the facial bones, interfering with normal breathing, with the patency of the Eustachian tubes, and even with mental development. In a considerable percentage of children in early life this hypertrophy of the adenoids is associated with hypertrophy of the tonsils, but not invariably so, and the two conditions should be regarded as distinct.

All adenoids interfering with easy nasal